

CLAIMS

What is claimed is:

1. A radio-frequency identification (RFID) circuit for use in an RFID tag, the circuit including:

an oscillator; and

a tag controller to select a selected calibration value, from a plurality of calibration values stored within a memory structure associated with the RFID circuit, according to a first selection criterion, each of the calibration values corresponding to a respective oscillation frequency of the oscillator of the RFID circuit,

wherein the oscillator is operationally calibrated utilizing the selected calibration value.

2. The circuit of claim 1, wherein the tag controller is to receive at least one calibration command, and an associated update value, and to store at least one of the plurality of calibration values within the memory structure responsive to the at least one calibration command.

3. The circuit of claim 1, wherein the tag controller is to generate at least a first calibration value of the plurality of calibration values within the RFID circuit, and wherein the update value is a modification value by which a second calibration value, previously generated within the RFID circuit, is modified by the tag controller to generate the first calibration value.

4. The circuit of claim 3, wherein the tag controller is to at least one of increment and decrement the second calibration value by the modification value to thereby generate the first calibration value.

5. The circuit of claim 2, wherein the update value is equal to the first calibration value, the update value having been generated in a calibration device external to the RFID tag, and wherein the tag controller is to store the update value as the first calibration value within the memory structure.

6. The circuit of claim 1, wherein the first selection criterion includes any one of a group of selection criterion including a mode of operation of the RFID tag, a selection command received at the RFID tag, an ambient condition applicable to the RFID tag, and an internal voltage applicable to the RFID tag.

7. The circuit of claim 1, wherein the tag controller is to determine at least one of the plurality of calibration values based on a radio-frequency signal received at the RFID tag from an RFID reader, and to store the at least one calibration value in the memory structure.

8. The circuit of claim 1, wherein the memory structure includes a non-volatile memory and a volatile memory, at least one of the plurality of calibration values being stored within the non-volatile memory, and at least a further one of the plurality of calibration values being stored within the volatile memory.

9. The circuit of claim 8, wherein the at least one calibration value stored in the non-volatile memory is not related to a frequency of a radio-frequency signal received at the RFID tag from an RFID reader, the oscillator utilizing the at least one calibration value

stored in the non-volatile memory to generate a modulator clock signal to be supplied to a modulator of the RFID circuit.

10. The circuit of claim 8, wherein the at least one further calibration value stored in the volatile memory is derived from a radio-frequency signal received at the RFID tag from an RFID reader, the oscillator utilizing the at least one further calibration value to generate a demodulation clock signal to be supplied to a demodulator of the RFID circuit.

11. A method for calibrating an oscillator within a radio-frequency identification (RFID) circuit for use in an RFID tag, the method including:

storing a plurality of calibration values within a memory structure associated with the RFID circuit, each of the calibration values corresponding to a respective oscillation frequency of the oscillator;

selecting a selected calibration value, from the plurality of calibration values stored within the memory structure, according to a first selection criterion; and

calibrating the oscillator in accordance with the selected calibration value.

12. The method of claim 11, wherein the storing of the plurality of calibration values within the memory structure includes receiving at least one calibration command, and an associated update value, at the RFID tag.

13. The method of claim 11, including generating at least a first calibration value of the plurality of calibration values within the RFID circuit, wherein the update value is a modification value by which a second calibration value, previously generated within the

RFID circuit, is modified to generate the first calibration value.

14. The method of claim 13, wherein the generating of the first calibration value includes at least one of incrementing and decrementing the second calibration value by the modification value to thereby generate the first calibration value.
15. The method of claim 12, wherein the update value is equal to the first calibration value, the update value having been generated in a calibration device external to the RFID tag.
16. The method of claim 11, wherein the first selection criterion includes any one of a group of selection criterion including a mode of operation of the RFID tag, a selection command received at the RFID tag, an ambient condition applicable to the RFID tag, and an internal voltage applicable to the RFID tag.
17. The method of claim 1, wherein the storing of the plurality of calibration values within the memory structure includes determining at least one of the plurality of calibration values based on a radio-frequency signal received at the RFID tag from an RFID reader, and storing the at least one calibration value in the memory structure.
18. The method of claim 1, wherein the memory structure includes a non-volatile memory and a volatile memory, at least one of the plurality of calibration values being stored within the non-volatile memory, and at least a further one of the plurality of calibration values being stored within the volatile memory.
19. The method of claim 18, wherein the at least one calibration value stored in the non-volatile memory is not related to a frequency of a radio-frequency signal received at

the RFID tag from an RFID reader, the method including utilizing the at least one calibration value stored in the non-volatile memory to generate a modulator clock signal to be supplied to a modulator of the RFID circuit.

20. The method of claim 18, wherein the at least one further calibration value stored in the volatile memory is derived from a radio-frequency signal received at the RFID tag from an RFID reader, the method including utilizing the at least one further calibration value to generate a demodulation clock signal to be supplied to a demodulator of the RFID circuit.

21. A radio-frequency identification (RFID) circuit for use in an RFID tag, the circuit including:

first means for selecting a selected calibration value, from a plurality of calibration values stored within a memory structure associated with the RFID circuit, according to a first selection criterion; and

second means for generating a frequency signal in accordance with the selected calibration value.

22. The circuit of claim 21, wherein the first means is for receiving at least one calibration command, and an associated update value, and for storing at least one of the plurality of calibration values within the memory structure responsive to the at least one calibration command.

23. The circuit of claim 21, wherein the first means is for generating at least a first calibration value of the plurality of calibration values within the RFID circuit, and

wherein the update value is a modification value by which a second calibration value, previously generated within the RFID circuit, is modified by the first means to generate the first calibration value.

24. The circuit of claim 23, wherein the first means is for at least one of incrementing and decrementing the second calibration value by the modification value to thereby generate the first calibration value.

25. The circuit of claim 22, wherein the update value is equal to the first calibration value, the update value having been generated in a calibration device external to the RFID tag, and wherein the first means is for storing the update value as the first calibration value within the memory structure.

26. A machine-readable medium storing a description of an RFID circuit, said RFID circuit comprising:

an oscillator; and

a tag controller to select a selected calibration value, from a plurality of calibration values stored within a memory structure associated with the RFID circuit, according to a first selection criterion, each of the calibration values corresponding to a respective oscillation frequency of the oscillator of the RFID circuit,

wherein the oscillator is operationally calibrated utilizing the selected calibration value.

27. The machine-readable medium of claim 26, wherein the description comprises a behavioral level description of the circuit.
28. The machine-readable medium of claim 27, wherein the behavioral level description is compatible with a VHDL format.
29. The machine-readable medium of claim 27, wherein the behavioral level description is compatible with a Verilog format.
30. The machine-readable medium of claim 26, wherein the description comprises a register transfer level netlist.
31. The machine-readable medium of claim 26, wherein the description comprises a transistor level netlist.